

1 2 3 4 5 6

Comparing the Age Distributions of Indigenous and Non-Indigenous Australians

Requirements

Graphing Calculator
Spread sheet software program

Optional

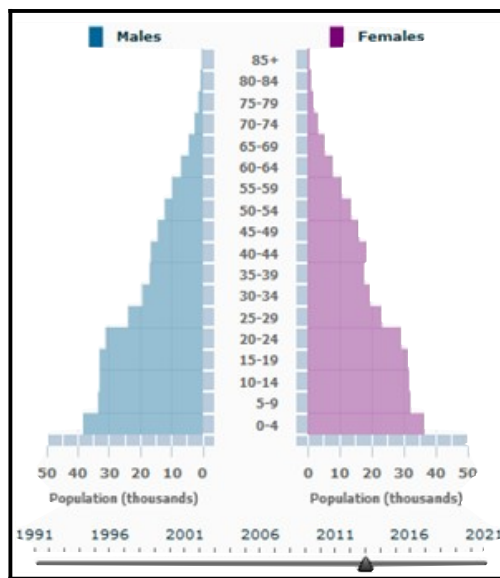
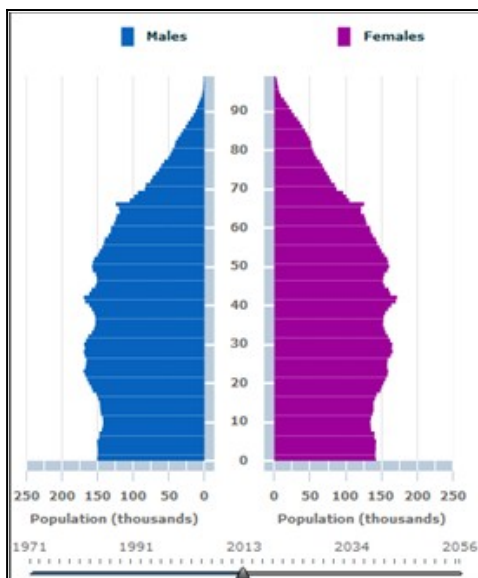
Computer
Internet connection

Background

Every 5 years the Census collects population data and in intervening years estimated resident populations (ERP) are produced. In non-Census years 'non-Indigenous' population counts are created by subtracting Indigenous population estimates or projections from total ERP.

The following population pyramids show the projected age distributions of all Australians and Indigenous Australians for 2013 (Midway between the 2011 and 2016 Censuses). They can be found on the Australian Bureau of Statistics web site.

In this activity you will compare and report on the age distributions of Indigenous and Non-Indigenous Australians using various statistical measures and graphical displays.



Year:	2013	Year:	2013
Total:	22,976,368	Total:	601,655
Males:	11,434,688	Males:	299,856
Females:	11,541,680	Females:	301,799

AUSTRALIANS

FIGURE 2: INDIGENOUS POPULATION

SOURCE: ABS Animated Population Pyramid
GLANCE-ABORIGINAL

Access other similar lessons at www.abs.gov.au/educa



PEOPLES

7

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10 The Data

The following data tables relate to the age distribution for NSW. Data for other states and territories can be found in the source documents shown beneath each table and could also be used to complete this activity. Note that these data use Indigenous population projections.

2010 Indigenous age distribution NSW

2010 Non Indigenous age distribution NSW

age		(f)	Mid point	Cumulative Freq (fx)	(Xf)
Male	0-4	226,319			
Male	5-9	217,298			
Male	10-14	220,475			
Male	15-19	236,065			
Male	20-24	261,039			
Male	25-29	264,284			
Male	30-34	245,265			
Male	35-39	253,463			
Male	40-44	237,849			
Male	45-49	247,840			
Male	50-54	230,688			
Male	55-59	208,542			
Male	60-64	194,287			
Male	65-69	147,190			
Male	70-74	114,214			
Male	75+	198,095			
Total (n)		3,502,913			
Female	0-4	215,586			
Female	5-9	205,875			

age		(f)	Mid point	Cumulative Freq (fx)	(x f)
Males	0-4	10,746			
Male	5-9	9,636			
Male	10-14	9,909			
Male	15-19	9,924			
Male	20-24	7,723			
Male	25-29	6,022			
Male	30-34	4,692			
Male	35-39	4,827			
Male	40-44	4,312			
Male	45-49	3,996			
Male	50-54	3,444			
Male	55-59	2,635			
Male	60-64	1,910			
Male	65-69	1,231			
Male	70-74	786			
Male	75+	740			
Total (n)		82,533			
Female	0-4	10,172			
Female	5-9	9,067			
Female	10-14	9,377			
Female	15-19	9,435			
Female	20-24	7,088			

e				
Femal	10-	210,686		
e	14			
Femal	15-	223,909		
e	19			
Femal	20-	247,048		
e	24			
Femal	25-	261,413		
e	29			
Femal	30-	247,162		
e	34			
Femal	35-	258,658		
e	39			
Femal	40-	242,457		
e	44			
Femal	45-	252,016		
e	49			
Femal	50-	237,360		
e	54			
Femal	55-	214,243		
e	59			
Femal	60-	195,635		
e	64			
Femal	65-	151,500		
e	69			
Femal	70-	122,807		
e	74			
Femal	75+	278,015		
e				
Total (n)		3,564,370		

Figure 3: ABS catalogue number 3101.0
3238.0
Australian Demographic Statistics and
Aboriginal ABS catalogue number 3238.0
Islander Australians, 1991-2021
Experimental Estimates and Projections, Aboriginal
and Torres Strait Islander Australians, 1991-2021

Figure 4: ABS catalogue number
Experimental Estimates and Projections,
and Torres Strait

Task One: Calculating Summary Statistics

Because of the amount of raw data available for population by age, it is presented in tables using 5 year intervals. One disadvantage of using data that is arranged in class intervals is that it is not possible to calculate exact measures such as mean, median and mode. Instead an estimate can be made using a mid-point to represent the data in each interval. E.g. for the age interval 0 – 4, (0, 1, **2**, 3, 4) the mid-point is 2.

To make it easier to calculate and draw graphs you can copy and paste the data into an Excel or other spread sheet application. Show all calculations correct to the nearest year.

1. Measures of Centre

Using a spread sheet fill in the mid-point and cumulative frequency columns.

Step 1: Finding the estimate of the mean

The mean is found by $\bar{x} = \frac{\sum xf}{n}$

Step 2: Finding the estimate of the median

The position of the median is located by $\frac{n+1}{2}$ where n is the number of data.

Calculate the value of $\frac{n+1}{2}$ and using the cumulative frequency column, locate the interval that contains this value. Use the mid-point of this interval to fill in the estimate of the median below.

Step 3: Finding the estimate of the mode

The mode is the most frequently occurring interval. Use the mid-point of this interval to fill in the estimate of the mode.

NSW age distribution	Non-Indigenous		Indigenous	
Estimate	Males	Females	Males	Females
Mean				
Median				
Mode (<i>excluding 75+</i>)				

Comment

2. Measures of Spread

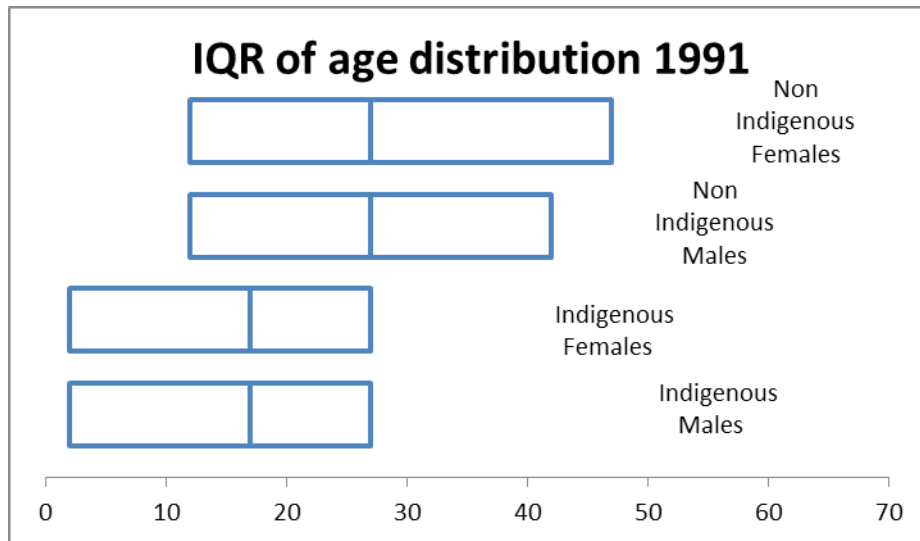
NSW age distribution	Non-Indigenous		Indigenous	
Estimate	Males	Females	Males	Females
Range (max - min)				
IQR ($Q_3 - Q_1$)				

Comment:

Task Two: Displaying the Data

3. Using the data in Figures 3 and 4 draw a separate histogram for each group and comment on each.

- 4.** Based on the same method used to find the median, find Q1 and Q3. Use a 5 figure summary to draw parallel box and whisker plots for each group. Comment on each.
- 5.** Below are box plots from the Indigenous and non-Indigenous populations Australia for the year 1991. Comment on how the age distributions have changed since then.



Comment:

11 *Extension*

Using ABS data for a different State or Territory repeat the investigation and compare your results with those for NSW.